Documenting, Preserving, Sharing:
The Digitization of ISMAR Natural Science Collections

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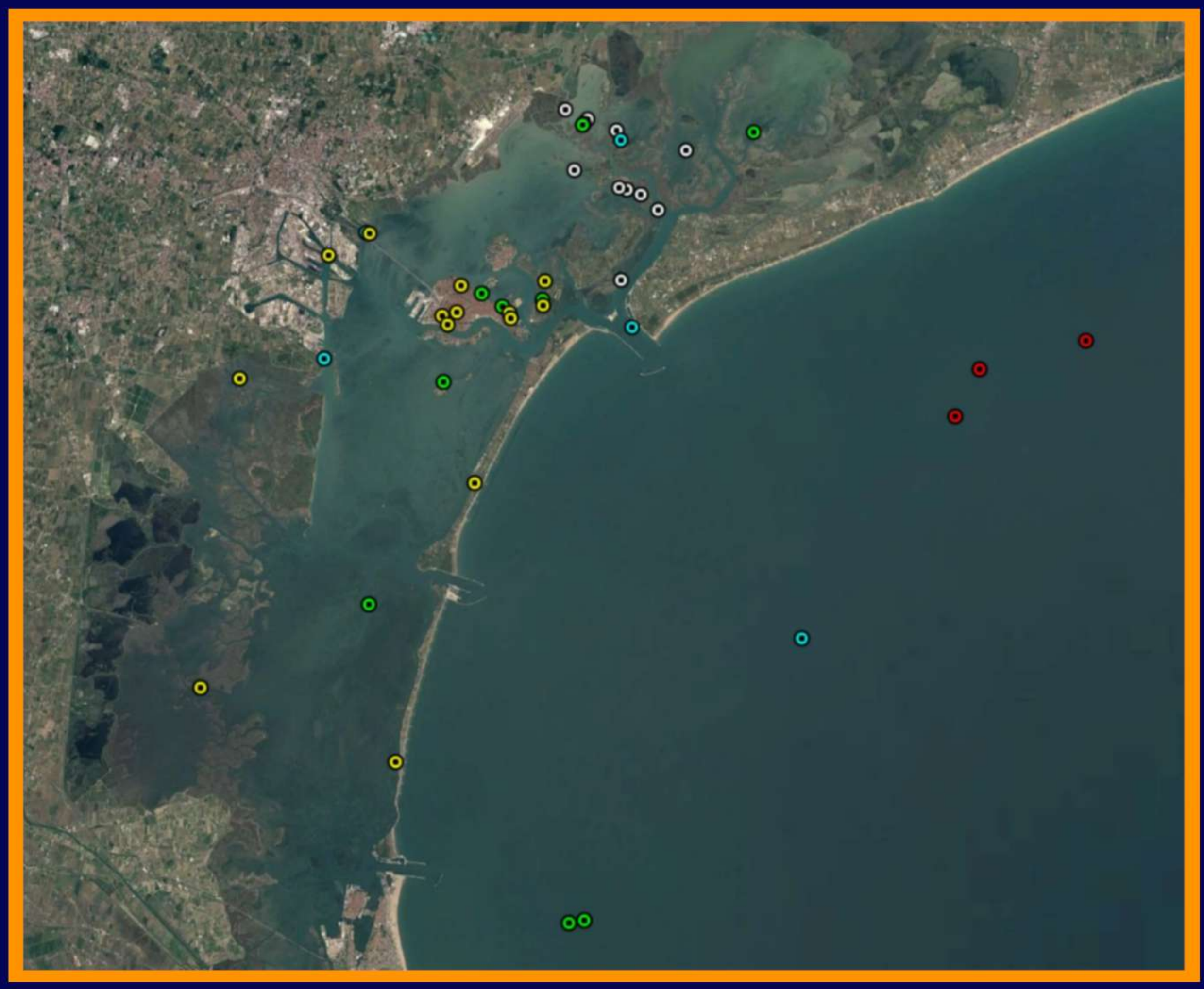
Introduction

Within the ITINERIS project, in Activity 6.6 “National network of the aquatic science collection” CNR-ISMAR has defined the procedure for the management, conservation and sharing of the preserved collections



NAdEm DC Zplank XLoVEU SeaVe

Goals

Document and safeguard natural science collections
Digitize specimens through standardized workflows
Integrate metadata following MIDS standards
Share data globally through GBIF and DiSSCo

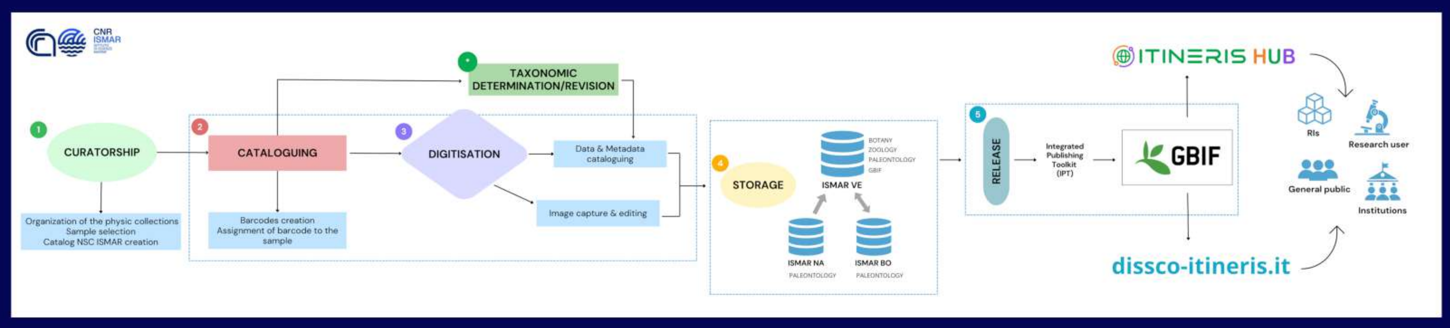
The Collections

Benthic invertebrates & macroalgae from Venice Lagoon and Northern Adriatic
Zooplankton from LTER sites and other Mediterranean areas
Xylophagous organisms from aquatic habitats across Europe

Preservation methods and storage

Dry - SeaVe
Formalin - ZPlank
Ethanol - DC, XLoVEU
Denatured alcohol - NAdEm

Digitization Workflow



Standardized procedures were implemented for cataloguing, photographing and metadata acquisition according to MIDS standards, ensuring interoperability and long-term preservation. The resulting datasets are openly available via GBIF and the ITINERIS Hub

Dedicated instrumentation supports the digitization process and is available for research activities: Olympus macro-photographic station with focus stacking, controlled LED lighting, precision balance, stereomicroscopes, a planetary scanner for herbarium sheets, and digital workstations for image processing and data management.

The equipment is accessible to the scientific community through CNR-ISMAR facilities within the ITINERIS project framework.

Results

35,755 specimens integrated in GBIF
5 heterogeneous collections digitized
700+ voucher specimens photographed
Creation of a high-quality visual archive

CNR-ISMAR experience shows how local research collections can evolve into global knowledge resources, supporting biodiversity monitoring, preservation of scientific memory, and open science dissemination.
Combining physical and digital curation builds a resilient infrastructure for the future of natural science collections.

Find out more at:

DC — Dese Crustaceans
Zplank — Zooplankton from the Lagoon of Venice
NAdEm — Northern Adriatic Epimegabenthos
SeaVe — Ulva (Chlorophyta) from the Lagoon of Venice
XLoVEU — Teredo bartschi collection from CNR ISMAR of Venice

Progetto PNRR ITINERIS IR0000032 - Italian Integrated Environmental Research Infrastructures System - Missione 4 “Istruzione e ricerca” - Componente 2 “Dalla ricerca all’impresa” - Linea di investimento 3.1 “Fondo per la realizzazione di un sistema integrato di infrastrutture di ricerca e innovazione” - CUP B53C22002150006.